



NRO REVIEW COMPLETED

CCR-0123

Copy 2 of 5.

26 August 1958

MEMORANDUM FOR : Special Assistant to the Director  
for Planning and Development

SUBJECT : CORONA/WS-117L Meetings

1. The monthly CORONA program review meeting was held 20 August in Palo Alto and attended by [redacted] Plummer and others of IMSD, [redacted] of Itek, [redacted] of GE, Col. Sheppard and others of BMD, and members of this headquarters Project Staff.

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2. The Lockheed master schedule was reviewed disclosing the following changes:

Vehicle structure design - estimated 80% complete but  
2 month slippage expected

Telemeter instrumentation design - Completed 1 month  
ahead of schedule

Re-entry system design - 1 month slippage expected

Experimental and development models - Extent of expected  
slippage unknown as  
of 20 August

Separation tests - 1 to 3 months slippage expected

These schedule slippages mean that development and testing will not be complete until November 1958, which coincides with first launching for component evaluation.

3. Reconnaissance system weights estimates have been revised to a major extent on two items:

Cone structure - increased from 33 to 48 pounds

Film - decreased from 40 to 20 pounds (one day supply)

All other weights unchanged except 2 pound reduction in radiation shield. Total system weight is now 392 pounds; the July estimate was 399 pounds.

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4. A cover story has been released to IMSD department managers concerned to permit faster and more complete utilization of other IMSD departments by Jim Plummer's group. This has been effective for about 2 weeks and was said to be highly satisfactory.

5. Major efforts are being put into assembly of a thermal mock-up for hot/cold testing in the new IMSD environment test changer. This facility is to be capable of temperatures from  $160^{\circ}\text{C}$ . to  $-85^{\circ}\text{C}$ . and pressure down to  $1.10^{-6}$  mm Hg. and capable of simulating thermal effects expected in practically any orbit. The thermal mock-up will consist of:

- Ablation nose shield
- Inner shell
- Film magazine
- Chute
- Inner and outer covers
- Retro-rocket
- Camera
- After cone

These parts are pictured in IMSD report SP-130 dated 20 August 1958, attached. Thermal testing is to be completed by late September.

6. An orbit with .02 eccentricity has been selected. The altitude at perigee and apogee are approximately 100 and 225 miles, respectively. Average altitude over target areas will remain approximately 140 miles and V/H corrections will be made in the camera system. This orbit results in slightly greater heating, but less drag per revolution. A net gain of 40 pounds can be realized in payload allowable weight by this orbit selection.

7. Launching at  $180^{\circ}$  meets range safety requirements at Vandenburg AFB (Camp Cooke), however the allowable payload is only 359 pounds in this launching direction. It would be desirable to launch at  $163^{\circ}$  to best cover the target areas and also allow a higher payload weight of 434 pounds. However the  $163^{\circ}$  launch direction involves an initial path over lower California. Selection of launch direction is expected to include a skirmish with range safety personnel at VAFB.

8. Cost allocation was mentioned as an increasing problem; however, the original ground rule remains in effect for the present, i.e. the overt program will absorb all joint costs while the covert program is charged only with costs specific to itself.

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9. The 117L tracking and communications systems are reportedly satisfactory for CORONA recovery. The following estimates were given for size of area in which impact is expected depending on tracking data used:

90% confidence level	down range	cross range
Pre-launch estimated track	750 mi.	400 mi.
Post-launch actual track	120 mi.	40 mi.
99.7% confidence level		
Post-launch actual track	225 mi.	70 mi.

Itek now estimates a Hyac II sub-system weight of 135 lbs. against a design goal of 136 lbs. Camera weight is now estimated at 69 lbs. and take-up cassette at 17 lbs. vs. design goals of 67 and 20 lbs. respectively. Itek expects to be about 2 weeks behind schedule in delivery of data and nos. 1 and 2 sets of components to Fairchild. However they expect to recover to the original timing in delivery of subsequent sets of components.

(A problem not mentioned at the 20 August meeting has become apparent. This is a possible 2 to 6 weeks delay in delivery of beryllium lens barrels to Itek. Lockheed and Itek are determining what can be done to obtain on schedule delivery.)

10. Itek have transported film from supply to take-up spool in a vacuum and expect that static discharge during film transport will not be a serious problem. Preservation of film after salt water immersion has not been achieved. No emulsion remained on acetate base film after immersion. Itek and EKO are looking into the possible use of a stronger film base material (Cronar) made by Dupont.

11. GE have decided to utilize glass laminates rather than REFRASIL in the nose cone because of better thermal properties. They have eliminated the stabilization chute and determined that the single main chute will be satisfactory. Serious problems facing GE are the Itek requirement of 0.3° tolerance in camera alignment and the slippages in design of other components which prevent a design freeze of the nose cone.

12. The WS-117L monthly project review meeting was attended on 21 August. This meeting involved considerable detailed discussion of progress and problems in each of the sub-systems and

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support topics. These included airframes, propulsion, guidance, photo, ferret, communications, manpower, training, base activation, etc.

13. Difficulties as exemplified by the need to replace fuel tanks and wiring harnesses because of failures in tests are leading to delays of from one to several weeks in some of the sub-systems. The UDMH engine was fired for 10 seconds on 20 August, however there may be a delay in delivery of complete THOR boosters. The WS-117L program includes:

System I	6 vehicles	engineering prototype tests
System IIA	14 vehicles	orbit capability development
System II	4 vehicles	pioneer visual
System III	4 vehicles	pioneer ferret

14. About the only thing on schedule was the rate of expenditure. Col. Oder mentioned the results of a security review at LMSD. This review indicated unsatisfactory conditions in physical security precautions, document control, and personal attitudes.

15. The following observations are offered:

a. A meeting with senior people from the prime and sub-contractors and BMD involved in CORONA seems appropriate within the next two weeks in order to evaluate the reality and extent of delays in WS-117L components as they may affect CORONA, and of delays of components within the CORONA program. Other problems such as cost allocations might be re-examined also at the same time.

b. Project personnel should take a more active role in the planning and conduct of future CORONA monthly review meetings. It was understood that contractor presentations would be followed by a discussion period; however, immediately after the presentations some of the more important people were not available.

c. Attendance at 117L monthly review meetings should continue in order to get first hand status of that program. However, this should be limited to one or two individuals at most. It might be advantageous to hold CORONA meetings on the day following 117L meetings instead of the day prior. This would alert Project personnel to possible 117L problems and may allow greater freedom for discussion with prime contractor personnel.

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16. Lockheed SP-130, 20 August 1958, and Itek Progress Report #2, SDR-9103-2, are appended. GE documents were not completed in time for reproduction and distribution.

/s/  
EUGENE P. KIEFER

Att:

1 (unnot'd) copy SP-130  
(photocopies of briefing aids for 20 Aug. mtg.) (COR-012401)  
Cy 3 Prog. Report No. 2, Proj HYAC II (COR-01227)

(1 set of attachments only w/cy 1)

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